

Application of the Problem-Based Learning Model to Improve Learning Outcomes of Class VI Students of SD Negeri Kedungwaru

Hikmawati^{1*}, Zulfan², Tangdliman³

¹ Program Studi Pendidikan Fisika, FKIP, Universitas Mataram, Mataram, NTB, Indonesia.

² SD Negeri 2 Dara Kunci, Sambelia, Lombok Timur, NTB, Indonesia.

³ SD Negeri Kedungwaru, Kebumen, Jawa Tengah, Indonesia.

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Corresponding Author:

Hikmawati

hikmawati@unram.ac.id

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Abstract: Every teacher expects all students to achieve mastery in learning above the Minimum Completeness Criteria (KKM). The learning outcomes of grade VI students of SD Negeri Kedungwaru have not reached maximum completeness, namely there are 12 children out of 26 children whose scores are above the KKM. This shows the need for efforts to improve student learning outcomes. The purpose of this community service activity is to improve the learning outcomes of grade VI students at SD Negeri Kedungwaru through the application of a problem-based learning model. The location for the implementation of the activity is at SD Negeri Kedungwaru, Prembun District, Kebumen Regency, Central Java. The time for carrying out activities in the classroom is carried out for 2 days, namely on August 26, 2022 and September 13, 2022. The number of participants in the activity, namely all sixth-grade students, is 26 people. The method of activity includes 3 parts, namely introduction, core, and closing. In the preliminary activities, apperception, motivation, and delivery of goals are carried out. In the core activities, 6 things are carried out namely orientation of students to problems, organizing students, guiding individual or group investigations, developing and presenting work, and analyzing and evaluating problem-solving processes. In the closing activity, concluding activities, learning reflections, and evaluations (giving tests) are carried out. The results of the activities show that: In learning 1 the average value of students from the aspect of knowledge assessment is 86.06, skills assessment is 85.58, while in learning 2 the average value of students from the aspect of knowledge assessment is 89.62, a skills assessment is 86.38. In the 1st and 2nd lessons, the value of all students has exceeded the KKM, with a KKM score of 70, so the number of students who have completed reached 100%, which is 26 students. From the aspect of assessing students' social attitudes in learning 1, 91% of students showed high curiosity, confidence and cooperation, and in learning 2 increased to 96%. Thus, community service activities in the form of applying a problem-based learning model can improve the learning outcomes of sixth graders at SD Negeri Kedungwaru in terms of knowledge, skills, and social attitudes.

Keywords: Problem-based learning, student learning outcomes

Introduction

Students are expected to have various 21st-century competencies in order to be able to compete globally. These competencies include higher-order thinking skills (HOTS) and collaboration. But in reality, students' HOTS levels are still at low level, especially in the sciences. Likewise, student collaboration skills in the learning process have not emerged. Therefore, one learning model that can overcome the problem of low HOTS and

collaboration skills is to apply a problem-based learning model from an early age (Suratno et al., 2020).

The application of various innovative learning models is needed to overcome various problems in learning in elementary schools. Many complaints were felt by students about the learning process that was followed, students felt bored because the teacher emphasized memorization which was based only on textbooks. Students have not been trained in developing thinking skills from what is

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obtained in learning. This has an influence on student learning outcomes in elementary school, especially the understanding of concepts or material taught by the teacher (Idris et al., 2019).

The learning process with the problem-based learning model is going well, student activity in discussions is increasing. Student learning outcomes also increased, as indicated by the number of students who achieved 90% complete KKM according to predetermined achievement indicators (Dewi & Wardani, 2019). The application of the PBL model is proven to improve critical thinking skills and students' abilities in solving HOTS-based questions for grade VI students (Nurbaya, 2021).

The problem-based learning model has a significant effect on increasing students' HOTS in elementary schools. Through this model, students are trained in solving problems, they can think critically and creatively to find various solutions to the problems given. Students will collaborate in group member discussions so that students are able to carry out analysis, evaluation, synthesis in order to solve problems (Pia et al., 2021).

In fact, not all teachers can apply the problem-based learning (PBL) model in learning. Not all teachers understand the theory and practice of PBL. The teacher must plan, then implement, and evaluate and reflect on the implementation of the PBL. At the planning stage, the teacher prepares HOTS-based lesson plans and other learning tools using the PBL model, including preparing learning media and relevant assessment instruments. At the implementation stage, the teacher conducts learning using the syntax or steps of the PBL model. In the final stage, an evaluation and reflection are carried out on the learning process using PBL. Evaluation is given to students to see the achievement of learning objectives. Teachers can measure the level of success in aspects of knowledge, aspects of skills, and aspects of attitude (Inayati, 2019).

The problems presented in the PBL model are real problems, namely contextual or close to students, can be seen, observed, experienced and felt by students. These real problems can be used as learning materials for students who can train students in developing critical thinking skills and problem-solving abilities. Students will obtain meaningful information through direct experience so that they can change behavior for the better in terms of quality and quantity. Thus, students will become more independent in solving various problems in the future in real everyday life that may be encountered (Fitri et al., 2022).

Teachers who do not provide opportunities for students to solve problems independently will have a bad impact in the future. Students will feel bored with the delivery of material by conventional teachers, or those that are still centered on teacher activities. Learning like this tends to be monotonous and causes low student learning outcomes. This view must be changed, that learning must be based on student activity, while the teacher acts as a facilitator (Alfianiawati et al., 2019).

The steps in applying the PBL model to increase student HOTS include five steps namely: first, student orientation to the problem; second, organizing students to study; third, conducting investigation guidance both individually and as a group; fourth, developing and presenting works; fifth, analyze and evaluate the problem-solving process. HOTS abilities can be in the form of aspects of critical thinking and creative thinking. Critical thinking indicators can be in the form of analyzing (the form of the activity is selecting and comparing) and evaluating (the form of the activity is checking and assessing). Indicators of creative thinking can be in the form of creating (the form of activity is making or concluding). The habit of critical and creative thinking as part of HOTS is important so that students can solve various problems in class and in everyday life (Handayani & Muhammadiyah, 2020).

Based on the results of observations made in class VI of Kedungwaru Public Elementary School, some information was obtained, namely: First, Grade VI students of Kedungwaru Public Elementary School did not participate actively in learning. Second, during the teaching and learning process students are reluctant to ask the teacher even though they do not understand what has been taught. Third, learning in class VI is still monotonous, only centered on the teacher's explanation. Fourth, the teacher does not use teaching methods that activate students and in delivering learning the teacher does not use the media so that many students do not understand the material presented. Fifth, student learning outcomes are low, namely only 12 out of 26 children whose grades are above the minimum completeness criteria.

The purpose of this community service activity is to improve the learning outcomes of class VI students at SD Negeri Kedungwaru through the application of a problem-based learning model.

Method

This community service activity took place at SD Negeri Kedungwaru, Prembun District, Kebumen Regency, Central Java. This activity was carried out

for 2 days, namely on 26 August 2022 and 13 September 2022. The number of participants who took part in this community service activity included all 26 grade VI students. In the first lesson take Theme 2 Unity in Difference, Sub Theme 1 Pillars in Difference. In the second lesson, take Theme 2 Unity in Difference, Sub Theme 2 Working Together to Achieve Goals.

The activity method includes 3 parts namely introduction, core, closing. In the preliminary activities, apperception, motivation, and delivery of goals are carried out. In the core activities, six things are carried out, namely the orientation of students towards problems, organizing students, guiding individual or group investigations, developing and presenting work, analyzing and evaluating the problem-solving process. In the closing activity, concluding activities, learning reflection, and evaluation (giving tests) are carried out.

The details for the core activities following the problem-based learning syntax are as follows:

- a. Orientation of students to problems. The things that are done are; Teacher displays PPT, students observe; The teacher gives questions to students regarding PPT; Students are randomly asked to answer questions from the teacher; The teacher gives an explanation of the problems that must be solved in the teacher's explanation LKPD and students listen
- b. Organizing students. The things that are done are; The teacher divides students into small groups and asks students to discuss working on LKPD
- c. Guiding individual or group investigations. The things that are done are; The teacher displays the learning video. Students observe the learning video provided by the teacher; The teacher accompanies students when working on LKPD, by asking what difficulties are found; Students consult the teacher if they find problems while working on the LKPD
- d. Develop and present the work. The things that are done are; Each group presented the results of their group.
- e. Analyze and evaluate the problem-solving process. The things that are done are; Students and teachers respond to presentations from each group; The teacher gives an assessment to each group and encourages other groups to give awards and input to other groups; The group that can answer the questions correctly and correctly gets an award from the teacher.

The competency achievement indicators for the first meeting which took Theme 2 Unity in Difference, Sub Theme 1 Pillars in Difference are as

follows. Aspects of knowledge in the field of science: 1) Analyzing how plants adapt to their environment (C4); 2) conclude how plants adapt and protect themselves in the environment (C5). Aspects of skills in the field of natural sciences: Making reports on how plants adapt and protect themselves in their environment (P5). Aspects of knowledge in the field of Indonesian: 1) Analyzing reading texts using the aspects: what, where, when, who, why, and how (C4); 2) Make a mind map with what, where, when, who, why, and how elements (C6). Aspects of skills in the field of Indonesian: Develop information on mind maps through writing in their own language (P4).

The indicators for achieving competence for the second lesson that take Theme 2 Unity in Difference, Sub Theme 2 Working Together to Achieve Goals are as follows: Aspects of knowledge in the field of Natural Sciences: Examining how animals adapt to their environment (C4). Aspects of skills in the field of natural sciences: Making a report on how animals adapt to their environment as a search result (P5). Aspects of knowledge in the field of Indonesian: analyzing the characteristics of effective sentences in a text about the spirit of unity in the preparation for Indonesian independence (C4). Aspects of skills in the Indonesian language field: Formulate important events about the spirit of unity and oneness in the form of a mind map based on historical texts using the what, where, when, who, why, and how aspects by using effective sentences (P4).

Result and Discussion

The results of this community service activity are discussed in 3 parts, namely preliminary activities, core activities, and closing activities.

Preliminary activities

The activities carried out are as follows: The teacher greets and asks how students are doing and checks student attendance. Students are invited to start learning by praying. The teacher conditioned the class. Students are invited to sing the song "Independence Day" through the video link:

<https://www.youtube.com/watch?v=G9lwFPPUSus>.

In apperception activities students were asked: Are there any plants around where you live? What plants are they? Why are there different types of plants? Students are given an overview of the lesson that will be carried out today. Students are informed about the learning objectives to be achieved. This is shown in Figure 1.



Figure 1. Apperception, motivation, delivery of goals

In addition to the things mentioned above, what is done in this preliminary activity is that students are given an overview of the benefits of learning the lessons that will be learned in everyday life.

Core activities

In this core activity, the things that are done are in accordance with the PBL syntax, namely:

First, the orientation of students on the problem. The things that are done are: The teacher displays pictures on power point, then the students and the teacher analyze them; Students and teachers conduct questions and answers related to the picture shown: What plant is this? Why if we touch the stem will feel itchy?; The teacher conveys a problem that must be solved in groups, regarding how plants adapt and protect themselves. This is shown in Figure 2.



Figure 2. Student orientation on the problem

Second, organizing students to learn. Things that are done are: Students are divided into several groups heterogeneously, each group consists of 4-5 students; Each student is distributed LKPD to be discussed in groups; Students are given an explanation regarding the tasks that need to be carried out and ensure that each student understands the tasks that must be carried out. This is shown in Figure 3.



Figure 3. Student organization in study groups

Third, Guiding individual or group investigations. The things that are done are: Students listen to the material and record important things from the video about how plants adapt and protect themselves via the link: <https://www.youtube.com/watch?v=slbA22xv2E>; Students are also invited to read teaching materials on how plants adapt and protect themselves in the environment; Students in groups hold discussions to solve problems based on the data/information that has been obtained; Students in groups make reports on how plants adapt and protect themselves in their environment according to the instructions in the LKPD. This is shown in Figure 4.



Figure 4. Guiding investigative activities

Fourth, Develop and Present the Work. What was done was After the discussion was over, the group representatives were asked to present the results of the discussion. This is shown in Figure 5.



Figure 5. Developing and presenting the work

Fifth, Analyze and evaluate the problem-solving process. Things that are done are: Students in other groups are asked to respond; The teacher gives an assessment to each student and encourages other students to give awards and input to other groups; Next, the teacher conducts questions and answers with students. "If plants adapt to the environment and protect themselves, what about the Indonesian people when they receive threats from outside?" "What is the condition of the natural environment around us if our nation is not yet independent?" "Can we take care of the plants around us if we are still being colonized?"; The teacher discussed with the students that the independence of the Indonesian nation was due to the services of the national heroes. They remain harmonious and united despite their many differences. This is shown in Figure 6.



Figure 6. Analyzing and evaluating the problem-solving process

Furthermore, the teacher and students silently read the text displayed on the power point about the figures who contributed to Indonesian independence; After reading, students in groups hold discussions to analyze the content of the reading then make mind maps with what, where, when, who, why, and how elements; The results of each student's work are written on the LKPD; This activity is intended to provide students with an understanding of KD Indonesian 3.4 and 4.4. Finally, students do the evaluation test independently. This is shown in Figure 7.



Figure 7. Evaluation (giving tests)

Giving tests is useful to see the level of understanding of students' concepts about the material that has been studied. Teachers can find out the achievement of learning objectives through the results of these tests.

Closing Activities

The things that are done in this closing activity are: Students and teachers reflect on the learning activities that have taken place; What have students understood? What have students not understood yet?; Students and teachers conclude today's lesson about how plants adapt and explore important information from a text; Students are invited to sing the song "Planting Corn" via the link:<https://www.youtube.com/watch?v=qviF6z-a00g>; The teacher gives a glimpse regarding the next meeting; Before the lesson ends, first do a prayer together led by one of the students; The teacher closes the lesson by greeting. This is shown in Figure 8.



Figure 8. Closing activities

The above activity was the result of implementing Problem-Based Learning (PBL) at the first meeting, which was on 26 August 2022. The results of implementing PBL at the second meeting, which was on 13 September 2022, followed similar steps but for different sub-themes. If the first meeting was the implementation of PBL for sub-theme 1 Pillars of Difference, then the second meeting was the implementation of PBL for Sub-Theme 2 Working Together to Achieve Goals.

The results of the activity showed that: In learning 1 the average value of students from the aspect of knowledge assessment was 86.06, skills assessment was 85.58, while in learning 2 the students' average value from the aspect of knowledge assessment was 89.62, skills assessment was 86,38. In the 1st lesson and 2nd lesson, the scores of all students have exceeded the KKM, with a KKM score of ≤ 70, so that the number of students who complete reaches 100%, which is 26 students. From the aspect of assessing students' social attitudes in learning 1, it was obtained a value of

91% of students showing high curiosity, confidence and cooperation and in learning 2 it increased to 96%.

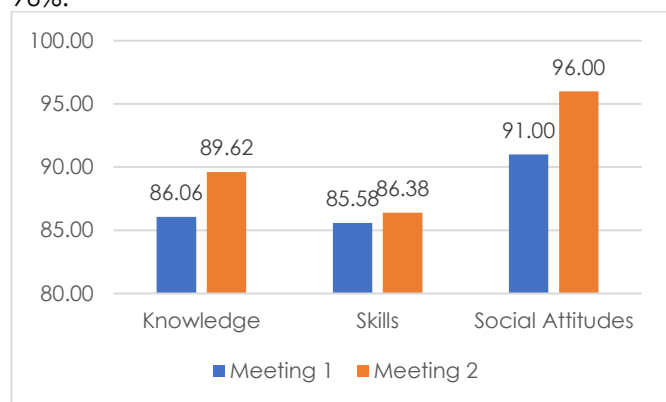


Figure 8. Student learning outcomes

In the knowledge aspect (cognitive domain), the application of the PBL model trains higher order thinking skills (HOTS) which include C4 (analyze), C5 (evaluate), and C6 (create). This can be seen from the competence of students in the science field who are able to: 1) analyze how plants adapt to their environment (C4); 2) conclude how plants adapt and protect themselves in the environment (C5); 3) Examine how animals adapt to their environment (C4). Students also have competence in the field of Indonesian, namely being able to: 1) Analyze reading texts using the aspects of: what, where, when, who, why, and how (C4); 2) Make a mind map with what, where, when, who, why, and how elements (C6); 3) analyze the characteristics of effective sentences in the text about the spirit of unity in the preparation for Indonesian independence (C4).

In the skill aspect (psychomotor domain), the application of the PBL model has trained two competencies namely: Articulation (P4) and Naturalization (P5). Articulation relates to: Associating various skills; Work by pattern. Naturalization relates to: Producing copyrighted works; Do something with great precision. The skills students already have from the results of applying this PBL to the science field are: 1) Making a report on how plants adapt and protect themselves in their environment (P5); 2) Make a report on how animals adapt to their environment as a search result (P5). The skills students already have in the Indonesian language field are: 1) Developing information on a mind map through writing in their own language (P4); 2) Formulate important events about the spirit of unity and oneness in the form of a mind map based on historical texts using the what, where, when, who, why, and how aspects by using effective sentences (P4).

Community service activities through the application of the PBL model not only train various competencies in the knowledge and skill aspects, but also in other aspects, namely the attitude aspect. In the aspect of attitude (affective domain), the application of PBL has trained students' social attitudes namely: curiosity, self-confidence and cooperation.

Several studies on the PBL model that have been proven to increase various student competencies that are needed in the 21st century are as follows. The application of the PBL model not only improves learning outcomes in the fields of science or mathematics, but also in Indonesian language lessons, namely: improving advanced reading and writing skills in grade IV SD (Nurhayati et al., 2021). The application of the PBL model has proven to have a positive effect on increasing HOTS in elementary school students (Efendi et al., 2021), improve the creative thinking skills of elementary school students (Ati et al., 2021), improve problem solving ability (Aras et al., 2022), increasing cooperation among elementary school students (Kurniasih et al., 2020), improve the learning outcomes of elementary students (Nofziarni et al., 2019), increasing the activities and responsibilities of elementary school students in the lower grades (Setyawati et al., 2018).

Kesimpulan

This community service activity has had a good impact on the participants. The application of the problem-based learning model in learning has improved the learning outcomes of class VI students at SD Negeri Kedungwaru. Learning outcomes increased not only in the knowledge aspect, but also increased in the skill aspect and the social attitude aspect of students. Competence that increases in the knowledge aspect, namely HOTS (C4, C5, and C6). Competencies that increase in the skill aspect are articulation (P4) and naturalization (P5). Competencies that increase in the aspect of social attitudes are curiosity, confidence and cooperation.

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